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| 10/811,475 | 03/24/2004 | Michael Hansen | HK-0795 | 1760 |

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| EXAMINER | |
|---|---|
| PARK, SOO JIN | |
| ART UNIT | PAPER NUMBER |
| 2624 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/811,475 | HANSEN ET AL. | |
| | Examiner | Art Unit | |
| | SOO JIN PARK | 2624 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *25 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

In response to the amendment filled 01/25/2007, all the amendments to the claims have been entered and the action follows.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**Claims 1, 6, 7, 8, 9, 10, 11, 14, 17, 18, 19, and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Von Wechgeln (USPN 6,697,168) in view of Sanger (USPN 6,717,601).

Regarding **claims 1 and 14**, Von Wechgeln discloses:

quantizing the binary image data with n bits (see column 3 lines 54-58, a binary image is stored as a bitmap, with some pixels intended to be blackened and some not, therefore suggesting quantizing into two values such as tonal value of white and tonal value of black, wherein n=1); and

filtering the quantized image data with a low-pass filter having a filter window smaller than a screen cell (see column 5 lines 3-7 and 17, calculating an average of 3x3 pixels within a screen cell that is 16x16 large).

Von Wechgeln fails to disclose obtaining corrected quantized image data from the filtered image data with a threshold value operation.

In a similar field of endeavor, Sanger teaches obtaining corrected quantized image data from the filtered image data with a threshold value operation (see column 9 lines 35-50, low pass filtered image is quantized with a threshold value operation).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to obtain corrected quantized image data from filtered image data with a threshold value operation, as taught by Sanger, for the purpose of optimizing the process of adding dot-gain while maintaining dot fidelity (see Sanger column 5 lines 56-61).

Regarding **claims 6 and 17**, Sanger further teaches carrying out the threshold value operation with a threshold value selected as a function of the local gray value and of the desired correction magnitude (see column 9 line 51 through column 10 line 9, the threshold value is selected as a function of local average gray value and of the desired dot gain).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select a threshold value as a function of the local gray value and of the desired correction magnitude, as taught by Sanger, for the purpose of optimizing the process of adding dot-gain while maintaining dot fidelity (see Sanger column 5 lines 56-61).

Regarding **claims 7 and 18**, Sanger further teaches storing threshold values in a threshold value table (see column 9 line 51 through column 10 line 9, a table of threshold is computed).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made store threshold values in a threshold value table, as taught by Sanger, for the purpose of optimizing the process of adding dot-gain while maintaining dot fidelity (see Sanger column 5 lines 56-61).

Regarding **claim 8**, Von Wechgeln discloses everything claimed as applied above (see claims 6 and 7).

Regarding claims **9, 10, 11, 19, and 20**, Sanger further teaches determining a threshold value function T1=f1(G,dG) empirically based upon model screen dots and obtaining a threshold value function T2=f2(G,dG) therefrom with approximation functions (see column 9 line 51 through column 10 line 9, a function is determined relating threshold, G, and dG based on model screen dots and obtaining intermediate threshold function value points by estimation, wherein G is the input gray value and dG is dot-gain which is desired amount of correction).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine a threshold value function based on model screen dots and estimate another threshold value function, as taught by Sanger, for the purpose of adjusting binary bitmap files to make proof and print appear the same (see Sanger column 6 lines 33-36).

**Claims 2, 3, 4, 5, 15, and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Von Wechgeln and Sanger in view of Sumimoto et al (USPN 7,031,545).

Regarding **claims 2 and 15**, Von Wechgeln and Sanger disclose everything claimed as applied above (see claims 1 and 14), however fail to disclose providing the low-pass filter with an asymmetrical distribution of filter coefficients with respect to the filter window.

In a similar field of endeavor of applying a low pass filter to an image, Sumimoto teaches providing the low-pass filter with an asymmetrical distribution of filter coefficients with respect to the filter window (column 4 line 58 through column 5 line 24 and figures 6(A)-(C), and 7(A)-(G), a low pass filter with asymmetrical distribution of filter coefficients with respect to filter window, such as that shown in figures 6(B) and 6(C), is provided).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a low pass filter with asymmetric filter coefficients with respect to the filter window, as taught by Sumimoto, for the purpose of descreening a binary image, as disclosed by Von and Wechgeln Sanger, by affecting only one side of an edge (see Sumimoto column 5 lines 16-24).

Regarding **claim 3**, Von Wechgeln, Sanger, and Sumimoto teach everything claimed as applied above (see claim 2), However fail to explicitly disclose asymmetrically distributing the filter coefficients of the low-pass filter with respect to the filter window.

Sumimoto suggests asymmetrically distributing the filter coefficients of the low-pass filter with respect to the filter window (column 4 line 58 through column 5 line 24 and figures 6(A)-(C), and 7(A)-(G), a low pass filter with asymmetrical distribution of

filter coefficients with respect to filter window, such as that shown in figures 6(B) and 6(C), is provided).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize asymmetrically distributing filter coefficients of a low pass filter with respect to the filter window, as suggested by Sumimoto, for the purpose of descreening a binary image, as disclosed by Von and Wechgeln Sanger, by affecting only one side of an edge (see Sumimoto column 5 lines 16-24).

Regarding **claims 4, 5, and 16**, Von Wechgeln, Sanger, and Sumimoto disclose everything claimed as applied above (see claims 2, 3, and 15), however fail to explicitly disclose obtaining the asymmetrical distribution of the filter coefficients from a symmetrical filter by shifting a filter function by fractions of an image point.

Sumimoto suggests obtaining the asymmetrical distribution of the filter coefficients from a symmetrical filter by shifting a filter function by fractions of an image point (see figure 6(B), low pass filter is a horizontally symmetrical filter shifted to the right by 1 image point unit).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized obtaining an asymmetrically distributed filter coefficients by shifting a filter function by fractions of an image point, as suggested by Sumimoto, for the purpose of descreening a binary image, as disclosed by Von and Wechgeln Sanger, by affecting only one side of an edge (see Sumimoto column 5 lines 16-24).

**Claims 12, 13, and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Von Wechgeln and Sanger in view of Loce et al (USPN 7,079,289).

Regarding **claim 12**, Von Wechgeln and Sanger disclose everything claimed as applied above (see claim 1), however fail to disclose obtaining corrected binary image data from the corrected quantized image data by quantization with 1 bit.

In a similar field of endeavor, Loce teaches obtaining corrected binary image data from the corrected quantized image data by quantization with 1 bit (see column 6 lines 35-43, printing a thresholded binary image data by 2 quantization tonal levels, i.e. black and white, therefore applying quantization with 1 bit).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a corrected quantized image data, as disclosed by Von Wechgeln and Sanger, and to quantize it with 1 bit i.e. 2 tonal levels of black and white, as taught by Loce, for the purpose of printing.

Regarding **claims 13 and 21**, Von Wechgeln, Sanger, and Loce teach everything claimed as applied above (see claims 1, 12, and 14).

### *Response to Arguments*

Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

## *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOO JIN PARK whose telephone number is 571-270-3569. The examiner can normally be reached on Monday - Friday 9:00 - 5:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SOO JIN PARK
Examiner
Art Unit 2624

SJP
April 29, 2008

/Vikkram Bali/
Supervisory Patent Examiner, Art Unit 2624